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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,663	07/02/2003	Xiang Dai	200308566-1	5441

22879 7590 10/31/2006

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EXAMINER

MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/612,663

**Applicant(s)**

DAI ET AL.

**Examiner**

James M. Mitchell

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8,10,13-16,21,23 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8,10,14-16,21,23 and 25-29 is/are rejected.
- 7) ☐ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This office action is in response to applicant's amendment filed June 30, 2006.

#### ***Claim Objections***

2. Claims 15, 16, 26 and 27 are objected to because of the following informalities: the means language is modified by sufficient structure, and acts for achieving the specific function in violation of M.P.E.P 2181. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, 10, 14-16, 21, 23, 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cromwell (U.S. 6,198,630) in combination with Dawson et al. (U.S. 5,261,615).

Cromwell (e.g. Fig. 1a) discloses:

(cl. 8, 15) an assembled electronic component system comprising: a printed circuit board (108); an integrated circuit package (102), in final state of the assembled system, including a substrate (e.g. a part of module) having a solder column array (Col. 2, Lines 29-31) connecting the integrated circuit package directly to the printed circuit board and a lid (121), the lid including an extended portion that extends directly from the substrate outwardly over an edge of the substrate (Fig. 2c); a plurality of removable supports (e.g.

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protruding section of ring ,110<sup>1</sup> secured by removable screw) disposed directly on the printed circuit board with each support disposed at each corner of the integrated circuit package including a body (e.g. portion for screw, 114) and a pair of wings (e.g. lft and rt. of body) extending from the body to be substantially perpendicular<sup>2</sup> to each other for contacting edges of the substrate of the integrated circuit package and the wings of the support being sized and shaped to extend underneath the extended portion of the lid of the integrated circuit package (Fig. 2C-D), wherein the body (e.g. screw portion) is sized and shaped to extend outwardly in a direction generally opposite from the wings to be exposed relative to, and not in contact with the extended portion of the lid (Fig. 2D); the wings of the support are sized and shaped to enable contact between the extended portion of the lid of the integrated circuit package and the wings of the supports without the gap in a final state of the assembled system (Fig. 2C-D), a compressive force mechanism (206) applying a compressive force on the integrated circuit package against the printed circuit board in both the first initial and second final assembled-state of the assembly, with the compressive force translated from the integrated circuit package to the printed circuit board through both the solder column array and the supports via the extended portion of the lid in the final-assembled state of the assembled system (e.g. Fig. 2C, the lid is not compressed any further than support); (cl. 14) with supports being metal (Col. 6, Lines 15-18); (cl. 16) means for carrying circuit component comprise printed circuit board (108) and means for performing circuit function comprises an integrated circuit (102);

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<sup>1</sup> E.g. ring made from metal (Col. 6, Lines 16-18) and as shown in Fig. 2C, and maintains a set height.

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(cl. 21) wherein the body of the support is sized, shaped, and positioned relative to the integrated circuit package to be secured relative to the printed circuit board via a fastener extending through the printed circuit board (E.g. screw 114 through holes in support and board) and into the body of the support while the wings of the support are in position below and in contact with the extended portion of the lid of the integrated circuit package (e.g. wings under lid/sin; Fig. 2C, D);

(cl. 23) the supports are configured to be mechanically fastened (e.g. screw, 114) to the printed circuit board without an adhesive and configured to support the lid;

(cl. 25, 29) used in a computer system (Abstract);

(cl. 27) with supports disposed at each corner of integrated circuit package (Fig. 1A);

(cont, cl. 28) with all the supports connected with a single band (e.g. piece of horizontal connecting portions of 110; Fig. 1A).

Cromwell does not appear to disclose a separate heat sink secured on top of its lid of the integrated circuit pack.

However Cromwell discloses the same invention except that its lid and heat sink are one piece, Dawson (Fig. 3A, 4A) discloses the use of a lid (306b) separate from its heat sink (306a) are functionally equivalent structures known in the art known in the art. Therefore, because these heat dissipation means are art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a heat sink that is separate from a lid for an integrated heat sink and lid.

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<sup>2</sup> Applicant discloses a single band connected to the supports, which forms the frame of the prior art.

In addition, the making the parts would have been obvious to one of ordinary skill in the art, since it has been held that that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice.”). See In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) (A claim to fluid transporting vehicle was rejected as obvious over a prior art reference which differed from the prior art in claiming a brake drum integral with a clamping means, whereas the brake disc and clamp of the prior art comprise **several parts** rigidly secured together as **a single unit**. The court affirmed the rejection holding, among other reasons, “that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice.”). (Emphasis added).

With respect to claim process limitation and means<sup>3</sup> of claims 1, 10 or claim 26 that solder height being less in the final phase than initial, the prior art structure is the same as the claimed invention final structure<sup>4</sup>. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product

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<sup>3</sup> The support means for the final product only requires forming no gap between chip and lid which is disclosed in Figure 2C.

<sup>4</sup> Note while the process limitation disclose various intermediate structure, the claim can only be drawn to one structure, which is the final product. Cf. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Cf. also M.P.E.P 2115 [R-2]

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was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Furthermore, with respect to the selection of material in claim 14, the selection would have been obvious to one of ordinary skill in the art, since it has been held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination. See *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See also M.P.E.P2144.07.

#### ***Allowable Subject Matter***

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose or make obvious a support as claimed with a detent and the board including a hole for receiving the detent, since cited prior art discloses a screw to secure the support; no teaching makes obvious the substitution of a detent in lieu of the screw or a motivation to combine a detent with screw usage.

#### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

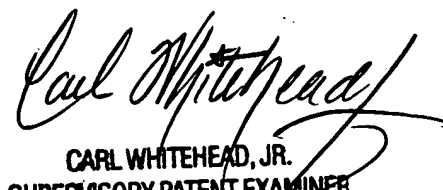


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ex. Mitchell, J.D.  
October 30, 2006



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